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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/542,091	04/03/2000	Jose De La Torre-Bueno PH.D.	10225-023001	4964

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EXAMINER
MILLER, MARTIN E

ART UNIT	PAPER NUMBER
2623	

DATE MAILED: 07/18/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

		Application No.	Applicant(s)
Office Action Summary		09/542,091	TORRE-BUENO PH.D., JOSE DE LA
		Examiner	Art Unit
		Martin Miller	2623

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *RCE filed JUne 17, 2002* .

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) *1-20 and 23-26* is/are pending in the application.

　　4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *1-20 and 23-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

　　Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

　　If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

　　a)☐ All b)☐ Some * c)☐ None of:

　　1.☐ Certified copies of the priority documents have been received.

　　2.☐ Certified copies of the priority documents have been received in Application No. _____ .

　　3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

　　* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

　　a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)　　　　　　　4)☐ Interview Summary (PTO-413) Paper No(s). _____ .
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)　5)☐ Notice of Informal Patent Application (PTO-152)
3)☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .　6)☐ Other: .

DETAILED ACTION

Request for Continued Examination

1.   The request filed on June 17, 2002 for Request for Continued Examination (RCE) under

37 CFR 1.114 based on parent Application No. 09/542091 is acceptable and a RCE has been

established. An action on the RCE follows.

Response to Amendments and Arguments

2.   Applicant's amendments and arguments filed April 22, 2002 have been made of record.

Claims 27-30 have been canceled. Claims 1, 10, 15, 23, and 24 have been amended accordingly.

3.   Applicant argues that instant invention differs from the prior art of reference by

performing image analysis functions on the original uncompressed source ("raw") image located

at the image server and not at the remote location (Applicant's response filed April 21, 2002, p.

5, second full paragraph). Applicant argues the inventive method "deals with losses due to

compression" (applicants response filed April 21, 2002, page 6, third paragraph), however, there

are no details of a compression or decompression scheme claimed.

        Additionally, Applicant further argues that mere manipulation of the image data is not

image analysis:

> In image processing, an image is operated on to produce a new, derivative
> image (e.g., an enlarged portion of the image). In image analysis, certain
> characteristics of an image are operated on to produce a value, e.g., a score for
> a region of a medical image, but the image itself is not altered.

Applicant's response filed April 21, 2002, page 6, third full paragraph.

But specification does not state such a precise difference between image analysis and image

processing. In fact, the specification seems to state the opposite. Please look at page 5, last

paragraph in the specification. Specifically the sentences that state:

"More specifically, image server 24 analyzes the region information received
from the remote view station 26 and applies the image processing operation to
a subset of the pixel data of the source image. The subset pixel data is
selected based on the boundaries defined by the region information received
from remote view station 26. In this manner, the image <u>processing operation
produces à more accurate score</u> than if the operation were applied by remote
view station 26 to the image..."

Applicant appears to use the above definitions of image analysis and image processing

interchangeably or, at least, as being necessarily interdependent operations in forming an

automated medical diagnosis. Based upon the above, the examiner will interpret analysis to be

an operation separate from processing, but not limited to merely returning a score, and being

interdependent upon image processing.

Therefore, based upon the above interpretation the examiner withdraws his previous

rejection of the claims and applies new prior art to the claims.

Claim Rejections - 35 USC § 103

4.   The text of those sections of Title 35, U.S. Code not included in this action can be found

in a prior Office action.

5.   Claims 1, 3-15, 17-20, 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Novik US 5432871 and Echerer et al., US 5740267 (hereinafter Echerer).

As per claim 1, Novik teaches:

generating a compressed medical (teleradiology) image from a source medical image

(col. 7, lines 33-35, and ll. 55-60) at a first location (figure 2, blocks 201, 202) ;

transmitting the compressed (JPEG , col. 7, ll. 58-60) medical image to a remote view

station at a second location for display (figure 2, block 203, col. 7, ll. 60-62, col. 8, l. 15-18);

decompressing the compressed image file (col. 7, l. 67, figure 2, block 204, col. 8, ll. 34-40);

selecting a region ("area of particular interest", col. 8, ll. 41-48) of the decompressed medical image at the second location (figure 2, blocks 204-209;

Novik teaches image processing functions (zooming, color and spectral response, col. 8, l. 62-col. 9, l. 19), he does not specifically teach image analysis. However, Echerer teaches enhancing (processing) medical images and performing analysis on the enhanced images. Echerer teaches:

and applying image analysis operations to a region of the source medical image corresponding to the selected region of the decompressed medical image (col. 4, ll. 17-22 and 36-41, col. 9, ll. 30-33, 37-45, col. 10, ll. 29-36, col. 17, ll. 32-63).

It would have been obvious to one of ordinary skill in the art to utilize the automatic analysis features of Echerer in combination with the image enhancement features of Novik that facilitates interactive control of the image data by a expert located remotely from the image data by correcting compression errors which reduces the tension between medical diagnostic quality image sizes and storage requirements, particularly in remote sites. One would be clearly motivated to utilize the features of both Novik and Echerer because the two disclosures are directed towards solving the problem of the instant invention of providing quality image data without requiring huge amounts of data storage space.

As per claim 3, Novik teaches:

transmitting region separate from the compressed medical image from the remote view

station to a image server, wherein the region information defines the selected regions of the

displayed medical image. (col. 8, ll. 44-48, 57-60).

As per claim 4, Novik teaches:

the region information is a series of pixels (col. 10, ll. 18-19).

As per claim 5, Echerer teaches:

image analysis operations includes outputting a score (col. 15, ll. 37-65) contrast range

analysis function) and communicating the score to a remote view station (col. 5, ll. 25-37) for

display (Figure 7, Display analysis).

As per claim 6, Echerer teaches:

receiving a diagnosis at a first location from the remote view station and associating the

diagnosis with the source medical image in a database (col. 7, ll. 10-30, col. 10, ll. 30-36) at the

first location.

As per claim 7, Novik teaches:

wherein selecting the compressed medical image includes receiving input from a pointing

device controlled by a user to outline the region of the compressed medical image (col. 7, ll. 1-8,

col. 10, ll. 12-15).

As per claim 8, Wood teaches:

generating a compressed medical image includes applying a compression algorithm that

reduces data losses that are detectable with human vision. (col. 7, ll. 58-60, col. 8, ll. 5-15)

As per claim 9, Wood teaches:

applying JPEG compression algorithm (col. 7, ll. 58-60, col. 8, ll. 5-15).

As per claim 10, it recites substantially the same limitations as claim 1 above and analogous remarks apply except for the following limitation, which is taught by Novik:

the remote viewing station includes an input device for selecting a region of the compressed medical image. (col. 7, ll. 1-5).

As per claim 11, it recites the same limitations as claim 4 above and analogous remarks apply.

As per claim 12, it recites the same limitations as claim 5 above and analogous remarks apply.

As per claim 13, it recites the same limitations as claim 6 above and analogous remarks apply.

As per claim 14, it recites the same limitations as claim 7 above and analogous remarks apply.

As per claim 15, it recites substantially the same limitations as claim 1 above and analogous remarks apply.

As per claim 17, it recites the same limitations as claim 4 above and analogous remarks apply.

As per claim 18, it recites the same limitations as claim 5 above and analogous remarks apply.

As per claim 19, it recites the same limitations as claim 6 above and analogous remarks apply.

As per claim 20, it recites the same limitations as claim 8 above and analogous remarks apply.

As per claim 26, it repeats substantially the same limitations as claim 6 above as rejected by Novik and Echerer and analogous remarks apply.

It would have been obvious to one of ordinary skill in the art to utilize the automatic analysis features of Echerer in combination with the image enhancement features of Novik that facilitates interactive control of the image data by a expert located remotely from the image data by correcting compression errors which reduces the tension between medical diagnostic quality image sizes and storage requirements, particularly in remote sites. One would be clearly motivated to utilize the features of both Novik and Echerer because the two disclosures are directed towards solving the problem of the instant invention of providing quality image data without requiring large amounts of data storage space.

6.   Claims 23 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Novik.

As per claim 23, Novik teaches:

compressing a source medical image at a first compression level (JPEG, col. 7, ll. 55-66);

transmitting the compressed medical image to a remote view station at a second location for display (figure 2, block 203);

receiving at a first location region information separate from a decompressed (col. 87, ll. 34-36) medical image (col. 8, l. 57-60, figure 2, block 205) from the remote view station, said decompressed medical image generated from the compressed medical image at the remote view station, wherein the region information defines a region of the decompressed medical image (col. 8, ll. 44-48);

Novik does not specifically teach that the region of the source medical image will be compressed at second compression level as a function of the region information. However,

Novik teaches that the user chooses the quality factor Q of the compression based upon the detail

required of the particular area of interest. Therefore, Novik teaches:

compressing a region of the source medical image at a second compression level (col. 8,

ll. 8-15) at the first location as a function (Quality required, col. 8, ll. 29-33) of the region

information, wherein the second compression level results in less information loss that the first

compression level.

It would have been obvious to one of ordinary skill in the art to use different levels of

compression based upon the narrow field of view selected and the desired level of image quality

by the end user in which to compress the particular area of interest data. This allows for even

further reduction of data if the image quality is not that critical or allows for immediate high

quality image data for fields of view that indicate problem areas.

As per claim 25, Novik teaches:

the region information is a series of pixels (col. 10, ll. 18-19).

7.   Claims 2, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Novik

and Echerer as applied to claims 1 and 15 above, and further in view of Wood.

Neither Novik nor Echerer specifically teaches that the network used to transmit the

medical image data is over a global packet switched network. Novik teaches transmitting the

compressed medical image (figure 2, block 203). But Wood teaches:

As per claims 2 and 16, Wood teaches:

a global packet switched network (col. 4, l. 11).

It would have been obvious to one of ordinary skill in the art to use the medical image

data transmission suggestions of Wood with the Image processing and analysis functions of

Novik and Echerer to since the packet-switched approach to data transmission "became the

choice of internetworked computers due to the advantages of cost and performance" (Wood, col.

4, ll. 11-13).

8.   Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Novik as applied

to claim 23 above, and further in view of Wood.

Novik does not specifically teach that the network used to transmit the medical image

data is over a global packet switched network. Novik teaches transmitting the compressed

medical image (figure 2, block 203). But Wood teaches:

As per claim 24, Wood teaches:

a global packet switched network (col. 4, l. 11).

It would have been obvious to one of ordinary skill in the art to use the medical image

data transmission suggestions of Wood with the image processing of Novik since the packet-

switched approach to data transmission "became the choice of internetworked computers due to

the advantages of cost and performance" (Wood, col. 4, ll. 11-13).

Conclusion

9.   The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure. The following U.S. patent(s) refer(s) to remote access of medical images and

diagnosis thereof: Maitz et al., 6031929, DiRienzo, 6006191, Reber, 5646677, Mascio, 5586160,
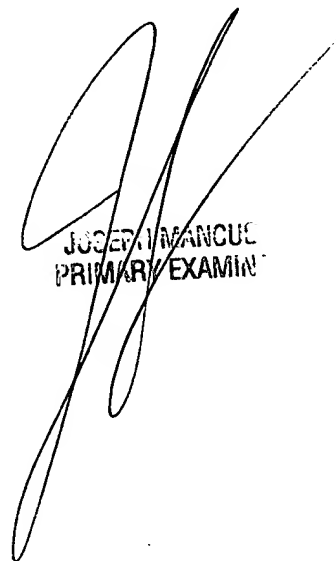
and Pinsky et al., 5469353.

10.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Martin Miller whose telephone number is (703) 306-9134. The

examiner can normally be reached on Monday-Friday, Maxi-flex.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Amelia Au can be reached on (703) 308-6604. The fax phone numbers for the

organization where this application or proceeding is assigned are (703) 872-9314 for regular

communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding

should be directed to the receptionist whose telephone number is (703) 305-3900.

mem
July 12, 2002

JOSEPH MANCUC
PRIMARY EXAMINER